Highlighting the U.S. Army's Chemical Demilitarization Program

Reach

Edgewood
Summer 2003

Contact Us

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CMA

U.S. Army Chemical Materials Agency (Provisional)

www.cma.army.mil

ABCDF's hydrolysate is on the move

You may be aware of how the mustard agent stockpile at Aberdeen Proving Ground is being neutralized. But do you know what happens to the byproduct of that process?

According to a recent telephone survey conducted last spring, 89 percent of those surveyed indicated they did not know about the neutralization byproduct, called hydrolysate, and the Army's plans to transport it off site for biotreatment. We'd like to make sure the community is informed about what happens to the hydrolysate.

Hydrolysate is the muddy-looking liquid that remains after the neutralization process is complete. It's mostly water, with a small amount of an organic chemical called thiodiglycol, a commercial compound used extensively in the ink and paint industry. Also present are some impurities, organic compounds and metals, such as copper and iron, which were present in the mustard agent.

It's important to know that each batch of hydrolysate is tested before it leaves the Aberdeen Chemical Agent Disposal Facility (ABCDF) to ensure no mustard agent is detected. DuPont Secure Environmental Treatment is under contract to biotreat the hydrolysate at its Chambers Works facility in Deepwater, N.J.

During biotreatment, the hydrolysate undergoes DuPont's "powdered activated carbon treatment" (PACT) process, which combines both carbon adsorption and biological degradation technologies. Biological degradation involves microorganisms that "digest" the thiodiglycol to form carbon dioxide and wet solids. The water from the wet solids is further treated in an additional PACT step as industrial wastewater and the final effluent is sufficiently non-toxic to allow for its discharge under applicable environmental permits.

On June 17, trained hazardous waste material drivers specially contracted by DuPont for the Aberdeen project, began transporting the first hydrolysate shipments to Chambers Works. Chambers Works is the largest commercial and industrial wastewater treatment facility in the United States, processing more than 18 million gallons of wastewater daily. The neutralization of the entire Aberdeen stockpile and the decontamination of the containers will produce roughly seven million gallons of hydrolysate.

Although the hydrolysate is neither explosive nor flammable, recent analyses have shown several batches of hydrolysate to have a pH higher than the 12.5 pH level originally estimated, making it more corrosive than expected. Public meetings were held July 16 and 17 in Harford and Kent counties to discuss these analyses with the community and inform citizens that the higher pH hydrolysate could be transported to DuPont for safe, effective treatment.

DuPont is scheduled to receive approximately 12 trucks a day, five days a week, during full-scale operations. The hydrolysate is shipped under the applicable Department of Transportation (DOT) classification for hazardous wastes. The recommended emergency response measures for the hydrolysate are the same as for consumer commodities, shipped as Class ORM-D, the DOT classification commonly used by industry to ship household chemicals to retail stores for sale to the public. Like wastes of similar and greater hazard,

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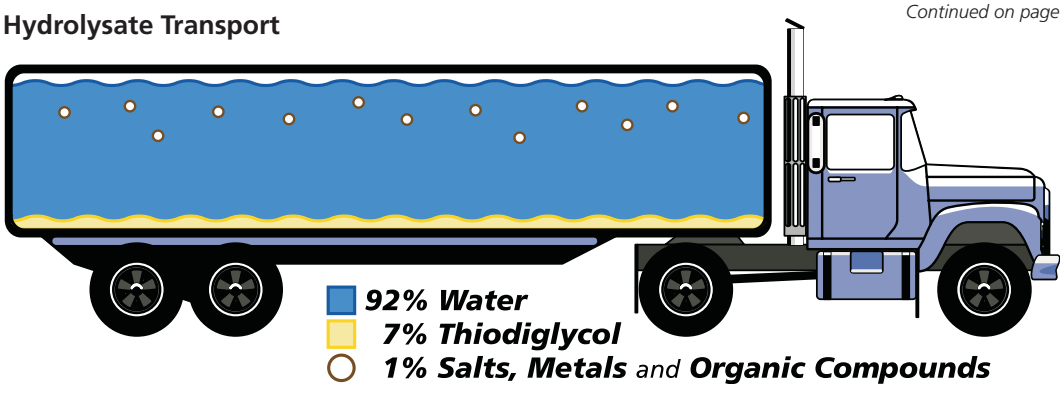
Hydrolysate Transport



Survey assesses community awareness and information needs

Last spring, you may have received a telephone call from The Research Group, a market research organization. The Army contracted The Research Group to determine if the communities surrounding Aberdeen Proving Ground have adequate information about neutralization of the mustard agent stockpile at the Aberdeen Chemical Agent Disposal Facility (ABCDF). The survey, conducted March 27 through April 9, included more than 600 phone interviews in a random sampling of residents who live closest to the disposal facility in Harford, Kent and Cecil counties.

What we learned:

- When asked to name sites where chemical stockpiles are being eliminated, 74% of those surveyed mentioned the disposal efforts at APG.
- About 30% of those surveyed said they wanted more information about process safety and the facility's impact on the environment and the community.
- More than two-thirds (69%) believe safety is the Army's number one priority during mustard agent disposal.
- Three-in-ten (30%) believe disposal poses an environmental threat.
- Approximately 68% of those surveyed believe the Army openly answers questions about mustard agent disposal and provides information as soon as it is available.
- Roughly nine-in-ten respondents (89%) did not know about hydrolysate, the byproduct from the neutralization process, and the Army's plans to transport it to DuPont's Secure Environmental Treatment facility in Deepwater, N.J.
- Approximately 90% of those surveyed did not know about the ton container decontamination efforts that will take place when the mustard agent has been neutralized.

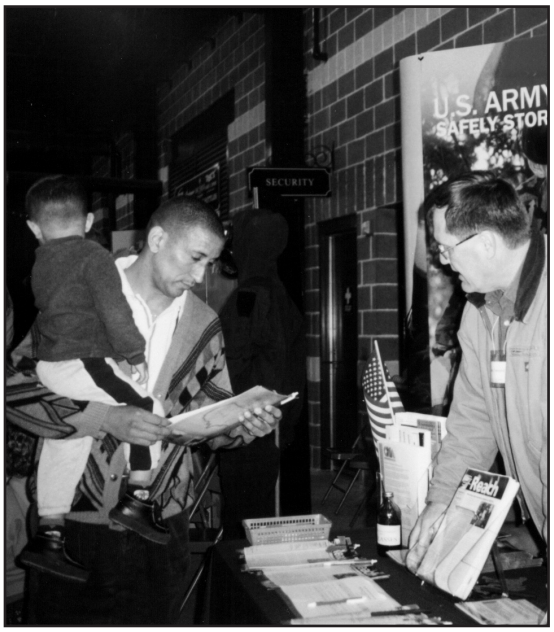


Photo by Nancy Hofmann

Aberdeen resident Alexander Alviarez, left, gets the facts about the Army's Chemical Materials Agency (Provisional) and accelerated mustard agent disposal efforts at APG from CMA support contractor Craig Campbell. Alviarez, holding his son, Maurice, visited CMA's booth during the Armed Forces Day celebration May 17 at Ripken Stadium in Aberdeen, Md.

What we'll do:

- We will continue to provide the community with regular and timely status updates on our progress at the ABCDF.
- We will continue to be available to answer questions in a variety of forums, which include but are not limited to one-on-one discussions, public meetings, speaking engagements, and fairs and festivals.
- We will develop information products to help the community learn more about environmental protection, hydrolysate transportation and ton container decontamination efforts.

What you can do:

- If you need more information or have questions, call the Edgewood Chemical Stockpile Outreach Office at (410) 676-6800.
- Call the number above to add your name to the mailing list.
- Fill out and return the reply portion of our bi-monthly "Report Card" mailers and tell us how you feel we're doing in meeting your information needs.
- Schedule a presentation for your group, no matter how big or small, to learn more about accelerated disposal at APG.
- Visit our Web site at *www.cma.army.mil* to check out our fact sheets, news releases and recent events.

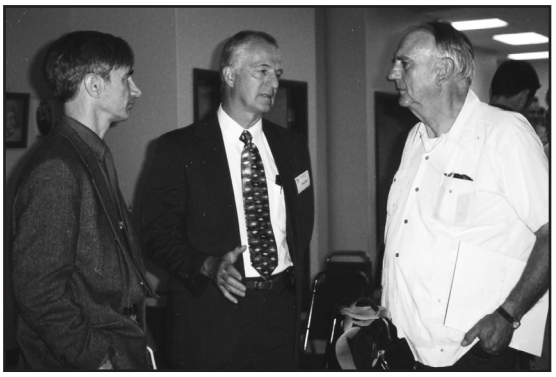


Photo by Nancy Hofmann

Aberdeen Proving Ground Restoration Advisory Board member Thomas McWilliams, right, discusses environmental matters with Maryland Department of the Environment's Ed Hammerberg and Butch Dye following a July 16 public meeting at the Edgewood Senior Center in Harford County, Md. A second public meeting was held July 17 in Kent County, Md., to update citizens on the status of operations at ABCDF and discuss findings of a higher pH in the neutralization byproduct, called hydrolysate.

Just the Facts

You may have completed and returned the *REACH* Reader Survey Card that appeared in our Spring 2003 newsletter. Some readers asked us to provide more facts about operations at ABCDF. We'd thought you'd like to know Just the Facts, too.

How does it work?

- Mustard agent is drained from the steel containers and added to large titanium mixing reactors
- 2,500-gallon reactors hold approximately 120 gallons of mustard mixed with 1,600 gallons of hot water per batch

How many people will it take?

- 60 workers per shift
- Each worker has completed an average of 190 hours of training
- Managers have completed even more training; plant manager has over 330 hours of training
- That averages more than 11,400 hours of training per shift
- Each shift has
  - drain station operators
  - neutralization operators
  - hazardous waste operators
  - environmental personnel
  - safety personnel
  - medical staff
  - laboratory technicians
  - maintenance technicians
  - engineering personnel
  - security personnel
  - administrative personnel

How long will it take?

- Plant operates 24 hours a day, 7 days a week
- Each batch of mustard agent takes about four hours start to finish, for neutralization
- Shipment of the hydrolysate takes just over an hour by truck for biotreatment

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hydrolysate can be safely transported in tanker trucks specifically configured to carry hazardous waste. These trucks meet the stringent requirements of the DOT and are operated by experienced and specially licensed hazardous waste transport operators. No special police or security escorts are required. Each truckload is carefully inspected, recorded and tracked. Chemical Weapons Convention inspectors also may be present at the Chambers Works facility to ensure that all aspects of the hydrolysate biotreatment meet treaty requirements.

For more information about neutralization of the mustard agent stockpile at Aberdeen Proving Ground, call the Public Outreach and Information Office, (410) 436-4555 or (410) 436-6137; the Edgewood Chemical Stockpile Outreach Office, (410) 676-6800; the Aberdeen Chemical Agent Disposal Facility Public Affairs Office, (410) 436-5253; or the Bechtel Aberdeen Public Outreach Office, (410) 436-9507. Also, you may visit our Web site at *www.cma.army.mil*. For more information about the DuPont Secure Environmental Treatment program, call their External Affairs Office, (302) 992-4273.

"At a glance – ABCDF stats"
(as of July 31, 2003)

Total Drained
More than 61 tons of mustard agent have been drained from 79 containers.

Total Neutralized
Of the drained mustard agent, **more than 50 tons** have been neutralized.

Hydrolysate Transport
Shipment of neutralization byproduct, called hydrolysate, to DuPont Secure Environmental Treatment at Chambers Works in Deepwater, N.J., for biotreatment began June 17, 2003.

Reach

Test your knowledge about the mustard agent stockpile at Aberdeen Proving Ground

1) The mustard agent stockpile stored in the Edgewood Area of APG was manufactured in preparation for:

a. World War I b. World War II c. Vietnam d. Persian Gulf War

2) The mustard agent stockpile is being destroyed because:

a. the Army no longer intends to use chemical weapons
b. the United States signed an international treaty that prohibits production, stockpile and use of chemical weapons
c. Congress mandated that the Army destroy the stockpile
d. all of the above

3) The Maryland Citizens' Advisory Commission:

a. was appointed by the Governor to help citizens influence Army decisions about destroying the chemical stockpile
b. is a state agency that offers advice to citizens on any subject
c. is co-chaired by Harford and Kent County residents
d. both a. and c.

4) The Army's plan to accelerate APG stockpile disposal involves:

a. destroying all of the agent first, then cleaning the containers later
b. speeding up how fast employees will work
c. manually draining the containers instead of using robotics and shipping the mostly-water neutralization byproduct to an existing commercial facility instead of building one at APG
d. both a. and c.

5) The Army is neutralizing the agent here at APG's Edgewood Area. The byproduct of the neutralization process:

a. is readily biodegradable using ordinary sewage-treatment variety bacteria
b. is tested to ensure that no mustard agent remains
c. is transported for biotreatment to DuPont's Chambers Works facility in Deepwater, N.J.
d. all of the above

Answers: 1) b. World War II; 2) d. All of the above; 3) d. Both a. and c; 4) d. Both a. and c; 5) d. All of the above.

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